WHAT IS CLAIMED IS:

1. A method for identifying a lead compound for diabetes drug development, comprising:

contacting a first aliquot of cells expressing a Rheb protein with a candidate compound under suitable conditions and for a period of time sufficient to affect Rheb activity;

measuring a parameter of the first aliquot of cells, the parameter associated with Rheb activity;

measuring the parameter in a second aliquot of control cells; and

comparing the measured parameters of the first and second aliquots of cells, wherein a change in the parameter is associated with an increase in Rheb activity.

2. The method of claim 1, wherein the Rheb protein is over-expressed and the parameter is cell size.

3. The method of claim 1, wherein the Rheb protein is over-expressed and the parameter is cell viability.

4. The method of claim 1, wherein the parameter is glucose uptake or utilization.

5. The method of claim 1, wherein the Rheb protein is human or Drosophila Rheb protein.

6. The method of claim 1, further comprising:

utilizing the candidate compound as a lead compound for diabetes drug development.

7. A method for identifying a lead compound for diabetes drug development, comprising:

contacting a candidate compound with Rheb protein under conditions conducive to binding of the compound to the Rheb protein;

detecting a resulting candidate compound-Rheb protein complex, and

determining whether the candidate compound increases or decreases Rheb protein activity.

8. The method of claim 7, further comprising:

utilizing the candidate compound as a lead compound for diabetes drug development.

9. The method of claim 7, wherein the Rheb protein is human or Drosophila Rheb protein.

10. The method of claim 9, wherein the Rheb protein is human Rheb protein.

11. The method of claim 7, wherein the candidate compound alters Rheb GTPase activity.

12. The method of claim 7, wherein the contacting is in cultured cells, and the stimulation of Rheb activity is detected by an increase in cell size or a prolongation of cell viability.

13. The method of claim 12, wherein the Rheb protein is over-expressed in the cultured cells.

14. The method of claim 7, wherein the contacting is in Drosophila larvae.

15. The method of claim 7, wherein the contacting is by administration of the candidate compound to Drosophila during eye development, and the stimulation of Rheb activity is detected by an enlarged eye phenotype.

16. The method of claim 7, wherein the Rheb protein is human Rheb protein expressed in Drosophila cells.

17. The method of claim 6, wherein the candidate compound increases glucose uptake or utilization.

18. A method for screening a library of candidate compounds to identify a lead compound for diabetes drug development, comprising:

contacting the candidate compounds with cells expressing a Rheb protein under suitable conditions and for a period of time sufficient to affect Rheb activity;

measuring a parameter of the contacted cells for a change in phenotype associated with Rheb agonist activity; and

determining whether the candidate compounds stimulate Rheb activity to identify a Rheb agonist.

19. The method of claim 18, wherein the measured parameter is cell size or cell viability.

20. The method of claim 18, wherein the measured parameter is the size of the eye in Drosophila.

21. The method of claim 18, wherein the measured parameter is glucose uptake or utilization.

22. The method of claim 18, measured parameter is GTPase activity.

23. The method of claim 18, wherein the Rheb protein is over-expressed in the cells.

24. The method of claim 18, further comprising:

utilizing the Rheb agonist as a lead compound for diabetes drug development.

25. A method for identifying a lead compound for drug development for a disease associated with abnormal cell growth, comprising:

contacting a first aliquot of cells expressing a Rheb protein with a candidate compound under suitable conditions and for a period of time sufficient to affect Rheb activity;

measuring a parameter of the first aliquot of cells;

measuring the parameter in a second aliquot of control cells; and

comparing the measured parameters of the first and second aliquots of cells, wherein a change in the parameter is associated with a change in Rheb activity.

26. The method of claim 25, further comprising:

utilizing the candidate compound as a lead compound for drug development for the disease associated with abnormal cell growth.

27. The method of claim 25, wherein the candidate compound inhibits Rheb activity.

28. The method of claim 25, wherein the Rheb protein is human or Drosophila Rheb protein.

29. The method of claim 25, wherein the measured parameter is cell size.

30. The method of claim 25, wherein the parameter is glucose uptake or utilization.

31. A method for screening a library of candidate compounds to identify a lead compound for drug development for a disease associated with abnormal cell growth, comprising:

contacting the candidate compounds with cells overexpressing a Rheb protein under suitable conditions and for a period of time sufficient to affect Rheb activity

measuring a parameter of the contacted cells for a change in phenotype associated with Rheb antagonist activity; and

determining whether a candidate compound inhibits Rheb activity to identify a Rheb antagonist.

32. The method of claim 31, further comprising:

utilizing the Rheb antagonist as a lead compound for drug development for the disease associated with abnormal cell growth.

33. The method of claim 31, wherein the Rheb protein is human or Drosophila Rheb protein.

34. The method of claim 31, wherein the measured parameter is cell size.

35. The method of claim 31, wherein the parameter is glucose uptake or utilization.

36. A non-human, transgenic animal over-expressing Rheb protein, wherein the animal has increased cell or organ size as compared with an animal not over-expressing Rheb protein.

37. The transgenic animal of claim 36, comprising human or Drosophila Rheb protein.

38. The transgenic animal of claim 36, wherein the transgenic animal is a primate, mammal, bovine, porcine, ovine, equine, avian, rodent, fowl, piscine, or crustacean.

39. The transgenic animal of claim 38, wherein the transgenic animal is a farm animal.

40. The transgenic animal of claim 39, wherein the farm animal is a chicken, cow, bull, horse, pig, sheep, goose or duck.

41. A transgenic, non-human animal over-expressing whose Rheb protein, wherein the over-expression results in increased size or growth rate of the animal.

42. A method for increasing the size or growth rate of a non-human, transgenic animal, comprising:

stably introducing into a genome of an animal cell a Rheb gene, whereby Rheb protein is over-expressed; and

producing an animal from the animal cell.